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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,911	02/09/2004	J. Doss Halsey	11196.21	8853

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EXAMINER

KARIKARI, KWASI

ART UNIT	PAPER NUMBER
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2686

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/774,911

Applicant(s)

HALSEY, J. DOSS

Examiner

Kwasi Karikari

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>05/20/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 20 May 2004 is in compliance with the provision of 37 CFR 1.97, has been considered by the Examiner, and made of record in the application file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,11,14 and17-19 are rejected under 35 U.S.C. 102(b) as being unpatentable over Seraj (U.S. 6,055,434), (hereinafter Seraj).

Regarding **claim 1**, Seraj discloses a system (cell area 170, see Fig. 2) for geolocating a cellular phone (mobile station 10), said system comprising:

a base station having a processor (communication network including BTS 140, MSC/VLR 40/35 and PSAP 20, see Fig. 1);

a plurality of dispersed transmitters (190) for transmitting respective beacon signals from respective known locations, wherein each said beacon signal has an identifying characteristic for said respective transmitter (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55);

a receive channel incorporated into said cellular phone, with said receive channel being activated to receive phase information (each beacon has different id and frequencies, see col. 4 lines 20-25 and (phase is an inherent feature of frequency)) from said beacon signals whenever said cellular phone dials a predetermined number (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-66); and

a means for passing said identifying characteristic and said phase information for each said beacon signal to said base station for use by said processor in determining the geolocation of said cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12).

Regarding **claim 2**, Seraj discloses a system as recited in claim 1 wherein said predetermined number is 911 (mobile station originates emergency to PSAP 20, see col. 3, lines 3-22).

Regarding **claim 3**, Seraj discloses a system as recited in claim 1 wherein said identifying characteristic is a frequency of said beacon signal (transmitters 190 communicate data through individual frequencies or channels, see col. 4, lines 7-33).

Regarding **claim 4**, Seraj discloses a system as recited in claim 1 wherein said identifying characteristic is a code (identification data broadcasted by each of the beacons uniquely identifies the beacon, see col. 2, lines 21-29) on said beacon signal.

Regarding **claim 11**, Seraj discloses a system as recited in claim 1 wherein at least one said transmitter is configured to transmit a plurality of beacon signals of

differing frequency (transmitters 190 communicate data through individual frequencies or channels, see col. 4, lines 7-33).

Regarding **claim 14**, Seraj discloses a system as recited in claim 12 wherein said means coupled with the cellular phone for receiving said beacon signals and extracting phase information and said identifying characteristics from each said beacon signal comprises a receive channel incorporated into said cellular phone, with said receive channel being activated to receive said beacon signals whenever said cellular phone dials a predetermined number (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-63 and Fig. 3).

Regarding **claim 17**, Seraj discloses a method for geolocating a cellular phone within a service area, said method comprising the steps of:

transmitting beacon signals into the service area from a plurality of dispersed predetermined locations, each beacon signal having a different identifying characteristic (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55);

receiving said beacon signals at the cellular phone; extracting phase information and said identifying characteristic from said beacon signals (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-63); and

using said phase information and said identifying characteristic to determine the position of said cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12).

Regarding **claim 18**, Seraj discloses the method as recited in claim 17 wherein said receiving step comprises the step of activating a receive channel whenever said cellular phone dials a predetermined number (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter (see col. 3, lines 3-22 and col. 4, lines 60-63).

Regarding **claim 19**, as recited in claim 17, Seraj's teaching of the triangulation method and plurality of beacons may enables accurate determination of the current location of the mobile station (see col. 5, lines 3-12), meets the limitation of position of said cellular phone comprises the step of calculating the pair-wise phase difference for at least two pairs of said beacon signals received at the cellular phone.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5,10,12,20 are rejected under U.S.C. 103(a) as being unpatentable over Seraj in view of Janky et al. (U.S. 5,552,772), (hereinafter Janky).

Regarding **claim 5**, as recited in claim 1, Seraj fails to teach that at least one said transmitter is an AM radio station.

Janky teaches that the emergency location system could use AM sub carrier signals to monitor the present location of serviceperson (see col. 7, lines 7-21).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Regarding **claims 10 and 20**, as recited in claims 1 and 17, Seraj fails to teach that each said beacon signal has a wavelength longer than 150 meters to allow each said beacon signal to penetrate structures.

Janky teaches that the LC 13, which serves as a mobile station, receives low FM signals such as 19kHz (15,789.5 meters) that are attenuated less, in passing through walls, floors and ceilings (see col. 8, lines 17-35).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics and could pass through walls and ceilings.

Regarding **claim 12**, Seraj discloses a system for geolocating a cellular phone in an urban area, said system comprising:

a plurality of dispersed transmitters for transmitting respective beacon signals into the urban area from respective known locations, wherein each said beacon signal

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has an identifying characteristic for said respective transmitter (plurality of transmitters 190 which are selectively placed throughout the geographic area, broadcast its own unique id data, see col. 3, lines 26-55);

a means coupled with the cellular phone for receiving said beacon signals and extracting phase information and said identifying characteristics from each said beacon signal (mobile station originates an emergency call connection towards PSAP 20 and a receiver Rx 210, with a pre-allocated or assigned channel or frequency, receives broadcast data id from transmitter, see col. 3, lines 3-22 and col. 4, lines 60-63); and

a means for using said phase information and said identifying characteristics to geolocate the cellular phone (transmitted data from transmitters are used to determine the location of the mobile station, see col. 5, lines 3-12), but fails to teach that each said beacon signal has a wavelength longer than 150 meters to allow each said beacon signal to penetrate structures in the urban area.

Janky teaches that the LC 13, which serves as a mobile station, receives low FM signals such as 19kHz (15,789.5 meters) that are attenuated less, in passing through walls, floors and ceilings (see col. 8, lines 17-35).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Janky into the system of Seraj for the benefit of achieving a emergency location system that use low FM frequency signals, that have less distortion characteristics.

Claims 6-9,15 and 16 are rejected under U.S.C. 103(a) as being unpatentable over Seraj in view of Krasner et al. (U.S. 20040092275), (hereinafter Krasner).

Regarding **claim 6**, as recited in claims 1, Seraj fails to teach the system further comprising calibration means to verify the accuracy of said system.

Krasner teaches that the digital processing system 105 is coupled to the clock 103 and could be recalibrated the time thereby synchronizing the clock to other clocks in other cellular base stations (see Page 4, line [0035]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj for the benefit of achieving a synchronization system whereby clock at the base station could be recalibrated to an affect the synchronization of the system.

Regarding **claims 7 and 15**, as recited in claims 1 and 12, Seraj fails to teach that the system further comprising a means for synchronizing each transmitter.

Krasner teaches that base station transmits cellular signal to the mobile station, in other to allow the cellular base station to synchronize itself to other cellular base stations (see Page 4, line [0036]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj for the benefit of achieving a synchronization system whereby signals from the base station are used to determine the location of a mobile receiver station.

Regarding **claims 8 and 16**, as recited in claims 7 and 15, Krasner further teaches that the said synchronizing means comprises a common time reference supplied to each transmitter from a Global Positioning System (GPS) (base station receives time tag TR1 that represents the GPS time which is associated with the maker M1, see Page 4, lines [0036 and 0037] and Fig. 1).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj for the benefit of achieving a synchronization system whereby signals from the base station and time from the GPS are used to determine the location of a mobile receiver station.

Regarding **claim 9**, as recited in claim 7, Krasner further teaching's of base station receiving a time tag TR1 that represent a GPS time (see Page 4, lines [0036 and 0037] and Fig. 1), meets the limitations of plurality of atomic clocks to provide a common time reference to each transmitter.

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Krasner into the system of Seraj for the benefit of achieving a synchronization system whereby signals from the base station and time from the GPS are used to determine the location of a mobile receiver station.

Claim 13 is rejected under U.S.C. 103(a) as being unpatentable over Seraj in view of Janky and further in view Duffett-Smith et al. (U.S. 6,529,165), (hereinafter Duffett).

Regarding **claim 13**, as recited in claim 12, the combination of Janky and Seraj fails to teach that the system wherein calculating the location of the target comprises a processor configured to process a Maximum Likelihood Method (MLM) algorithm to eliminate phase-related location ambiguities.

Duffett teaches that the relative position of handsets may be computed using maximum likelihood method (see col. 7, lines 8-26).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Duffett into the system of Seraj and Janky for the benefit of achieving a radio positioning system that uses maximum likelihood method to compute for the location of a receiver.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Panasik et al., (6,806,830) teaches an electronic device precision location via local broadcast signal.

McCall et al., (6,738,628) teaches an electronic physical asset tracking.

Gaal et al., (20030119496 A1) teaches a base station time calibration using position measurement data sent by mobile stations during regular position location sessions.


Radin (6,867,693) teaches spatial position determination system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-8566. The examiner can normally be reached on M-F (8 am - 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571- 272 5905. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kwasi Karikari
Patent Examiner.


CHARLES APPIAH
PRIMARY EXAMINER